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(74) Agents: CALDWELL, John, E. et al.; Woodcock Wasburn, L.L.P., One Liberty Place, 46th Floor, Philadelphia, PA 19103 (US).

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(71) Applicant (for all designated States except US): THE GOVERNMENT OF THE UNITED STATES OF AMERICA, as represented by the SECRETARY, DEPARTMENT OF HEALTH AND HUMAN SERVICES [US/US]; Office of Technology Transfer, National Institutes of Health, Suite 325, 6011 Executive Boulevard, Rockville, MD 20852-3804 (US).

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(72) Inventors; and

(75) Inventors/Applicants (for US only): JANINI, George [US/US]; 14220 Hiwood Road, Rockville, MD 20850 (US). ISAAQ, Haleem, J. [US/US]; 8103 Clearfield Road, Frederick, MD 21702 (US). VEENSTRA, Timothy, D. [CA/US]; 5540 Catholic Church Road, Jefferson, MD 21755 (US). CONRADS, Thomas, P. [US/US]; 312 Selwyn Drive, Apt. 3A, Frederick, MD 21701 (US). WILKENS, Kenneth, J. [US/US]; 4712 Sterling Cross Drive, Nashville, TN 37211 (US).

(54) Title: CONTIGUOUS CAPILLARY ELECTROSPRAY SOURCES AND ANALYTICAL DEVICE

(57) Abstract: Contiguous capillaries useful for separating and electrospraying a fluid comprising analyte and electrolyte are provided. The contiguous capillaries have spray tips at one end of the capillaries and electrically conductive portions in proximity to the spray tips. Methods for making the contiguous capillaries and their use as electrospray sources are also disclosed. Apparatus and methods for conveying analyte ions from the capillaries into analytical instruments, such as a mass spectrometer, are also disclosed. The disclosed contiguous capillaries may be used to carryout electrophoresis separation and electrospray ionization of analytes. Methods for obtaining the mass spectra of macromolecular analytes at concentrations lower than previously possible are provided using the apparatus and procedures described herein.

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INTERNATIONAL SEARCH REPORT

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PCT/US03/33200

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : A01C 17/00; B01D 57/02; C02F 1/40; C12Q 1/00; H01J 7/24
US CL : 204/450, 454, 601, 604; 239/696; 314/550; 315/111.81; 435/4

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
U.S. : 204/450, 454, 601, 604; 239/696; 314/550; 315/111.81; 435/4

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
West, Chem Abstracts

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	SHEN, Y. et al. High Efficiency Nanoscale Liquid Chromatography Coupled On-Line with Mass Spectrometry Using Nanoelectrospray Ionization for Proteomics. Analytical Chemistry. 15 August 2002, Vol. 74, No. 16, pages 4235-4249, see the abstract.	1-77
Y	KERTESZ, V. et al. Minimizing Analyte Electrolysis in an Electrospray Emitter. J. Mass Spectrometry. February 2001, Vol. 36, No. 2, pages 204-210, see the abstract.	1-77
Y, P	US 6,596,988 B2 (CORSO et al.) 22 July 2003, see the abstract, column 3 lines 38-42, column 6 lines 17-20.	1-77
Y, P	US 2003/0089605 A1 (TIMPERMAN) 15 May 2003, see the abstract.	1-77
A	US 5,245,186 A (CHAIT et al.) 14 September 1993.	1-77
A	US 5,975,426 A (MYERS) 02 November 1999.	1-77

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Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
Facsimile No. (703) 305-3230

Authorized officer

Ralph Gitomer

Telephone No. (703) 308-1235